

## Book review

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**G. HELAS, J. SLANINA & R. STEINBRECHER [eds.]: Biogenic Volatile Organic Compounds in the Atmosphere.**

SPB Academic Publishing bv, P.O. Box 11188, 1001 GD Amsterdam, The Netherlands, 1997, 184 pp., ISBN 90-5103-137-8.

Biogenic volatile organic group of compounds is important for atmospheric composition and reactivity. Some part of organic compounds in atmosphere are clearly of biogenic origin whereas others may not be. Benzene, for instance, as an atmospheric trace compound may be volatilized in the course of an anthropogenic process from pesticides. The present book contain contributions prepared for a workshop on Biogenic Volatile Organic Carbon, which was held from 10 to 14-Oct-1994 at the Max Planck Institute for Chemistry, Biogeochemistry Department, Mainz, Germany.

Exchange processes between plants and the atmosphere depend on physical, chemical or biological parameters. Environmental factors influencing plant metabolism has seasonal or diurnal effects. Developmental stages of plants are affected by meteorological factors like temperature, radiation, air humidity and precipitation. Structure and physiological state of plants influence metabolic processes which significantly contribute to the production of volatile compounds. In addition, stress (chilling, drought, wounding or air pollution) affects physiology and metabolism and production of volatiles, e.g. ethene. Considerable notice is devoted to the measurement methodology and strategy, sampling as well as analytical methods.

Twelve chapters of book deal with production and emission of methane, ethane, propane, butane, alkenes, acetylene, carbonyl compounds, alcohols, esters, ethers, isoprene, terpenes, volatile arenes and organic acids. Future investigations of volatile organic compounds production are outlined by J. Slanina in four topics: developments of measurement methods, study of biological mechanisms, description of land use, quality assurance and quality control.

M. REPČÁK

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### TAKHTAJAN A.: *Diversity and Classification of Flowering Plants.*

Columbia University Press, New York, USA; 1997, X+643 pp., ISBN 0-231-10098-1.

A. TAKHTAJAN published his last version of flowering plants system in 1987 (*Systema Magnoliophytorum*, in Russian). This new revision of the system is based on a great amount of new information published in the last ten years. This information consist of comparative-morphological studies including a micromorphological ones, karyological, chemical studies as well as molecular taxonomic studies, particularly the sequencing of protein and nucleic acid. However, as TAKHTAJAN states in preface, the latter often point to relationships that are clearly not comparative with other data and sometimes even quite outside the realm of possibility. He supposed that one of the main reason for spurious results is inadequate sampling and concludes that besides the random noise in DNA sequences, molecular characters are subject to evolutionary convergence, parallelism, and reversal, therefore, molecular methods are not a panacea. Molecular evidence should be used with, not in place of, morphological evidence.

*Takhtajan's* new system divides Phylum Magnoliophyta into two classes. Class Magnoliopsida consist of 11 subclasses: Magnoliidae, Nymphaeidae, Nelumbonidae, Ranunculidae, Caryophyllidae, Hamamelididae, Dilleniidae, Rosidae, Cornidae, Asteridae and Lamiidae; Class Liliopsida of 6 subclasses: Liliidae, Commelinidae, Arecidae, Alismatidae, Triurididae, Aridae. As far as orders and families are concerned, Takhtajan favour smaller, more natural groups, which are more coherent and better-defined, where characters are easily grasped. Takhtajan never accept the huge and unnatural family Liliaceae sensu latissimo, but, on the other hand, he is not in favour of any multiplication of taxa and not accept the division of Apocynaceae, Asteraceae, Fabaceae, Rosaceae, Poaceae and Orchidaceae.

Extraordinary and unique source of information in the book is a list of references. They are given after description of phylum and particular classes, subclasses and orders. They include both "western" and "eastern" literature (and for example small order Ceratophyllales is filled out by 29 literature references from 1848 to 1993). The selection of literature, even if huge, is prepared with good knowledge and regard to references with basic importance for understanding of the group. In some cases specialist will probably miss something (for example, no works of Prof. N. K. B. ROBSON, world monographist of the genus *Hypericum*, is cited).

By and large, the book is another valuable handbook for all botanists – systematists and students.